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29140/BN

CLAIMS

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1. Ljungan picornavirus, comprising in the non-coading region of its viral genome a nucleotide sequence corresponding to a cDNA sequence selected from the group consisting of

10 SEQ ID NO: 1 (Ljungan 87-012)

AGTCTAGTCT TATCTTGTAT GTGTCCTGCA CTGAACTTGT TTCTGTCTCT 50
GGAGTGCTCT ACACTTCAGT AGGGGCTGTA CCCGGGCGGT CCCACTCTTC 100
ACAGGAATCT GCACAGGTGG CTTTCACCTC TGGACAGTGC ATTCCACACC 150
15 CGCTCCACGG TAGAAGATGA TGTGTGTCTT TGCTTGTGAA AAGCTTGTGA 200
AAATCGTGTG TAGGCGTAGC GGCTACTTGA GTGCCAGCGG ATTACCCCTA 250
GTGGTAACAC TAGC

and homologous sequences having at least 75% homology to the SEQ ID

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NO: 1,

and further, causing mammalian disease.

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2. Ljungan picornavirus according to claim 1, wherein said homologous sequences have at least 80%, at least 85% or at least 90% homology to the
25 SEQ ID NO: 1.

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3. Ljungan picornavirus according to claim 2, wherein said homologous sequence is one of

30 SEQ ID NO:2 (Ljungan 174F)

AGTCTAGTTT CATTCTGTGT GTGTTTGGCA CTGAAATTAT TTCTGTCTCT 50
GGGGTGCTTT ACACTTCAGT AGGGGCTGTA CCCGGGCGGT CCCACTCTTC 100
ACAGGAATNT GCACAGGTGG CTTTCACCTC TGGACAGTGC ATTCCACACC 150
35 CGCTCCACAG TAGAAGATGA TGTGTGTCTT TGCTTGTGAA AAGCTTGTGA 200
AAATCGTGTG TAGGCGTAGC GGNTACTTGA GTGCCAGCGG ACNACCCCTA 250
GTGGTAACAC TAGC

and

40 SEQ ID NO:3 (Ljungan 145SL).

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AGTTTGGTTC TCTCTTGAGT GTGTTTTGTG TTAGCATAAT TTCTGTCTCT 50
AGAGTGCTTT ACACTCTAGT AGGGGCTGTA CCCGGGCGGT CCCACTCTTC 100
ACAGGAATCT GCACAGGTGG CTTTCACCTC TGGACAGTGC ATTCCATACC 150
CGCTCCACAA TAGAAGATGA TGTATATCTT TGTTTGTGAA ATGCTCATGA 200
AACGTGTGTG TAGGCGTAGC GGCTACTTGA ATGCCAGCGG AACCCCCCTA 250
GTGGTAACAC TAGC.

4. Protein comprising an amino acid sequence selected from the group
consisting of

SEQ ID NO: 4 (partial structural protein of Ljungan 145SL)

Sub-DI

664433433

Lys	Asp	Leu	Met	Glu	Ile	Ala	Arg	Met	Pro	Ser	Val	Tyr	Lys	Gly	Glu
				5					10					15	
Arg	Thr	Glu	Pro	Gly	Gly	Thr	Asn	Gly	Tyr	Phe	Gln	Trp	Ser	His	Thr
				20				25					30		
His	Ser	Pro	Ile	Asn	Trp	Val	Phe	Asp	Gly	Gly	Ile	His	Leu	Glu	Asp
				35				40					45		
Met	Pro	Asn	Leu	Asn	Leu	Phe	Ser	Ser	Cys	Tyr	Asn	Tyr	Trp	Arg	Gly
				50				55				60			
Ser	Thr	Val	Leu	Lys	Leu	Thr	Val	Tyr	Ala	Ser	Thr	Phe	Asn	Lys	Gly
				65				70				75		80	
Arg	Leu	Arg	Met	Ala	Phe	Phe	Pro	Ile	Met	Met	Gln	Gly	Thr	Gln	Arg
				85				90						95	
Lys	Lys	His	Lys	Cys	Leu	Phe	Met	Val	Cys	Asp	Ile	Gly	Leu	Asn	Asn
				100				105					110		
Thr	Phe	Glu	Met	Thr	Ile	Pro	Tyr	Thr	Trp	Gly	Asn	Trp	Met	Arg	Pro
				115				120					125		
Thr	Arg	Gly	Ser	Val	Ile	Gly	Trp	Leu	Arg	Ile	Asp	Val	Leu	Asn	Arg
				130				135				140			
Leu	Thr	Tyr	Asn	Ser	Ser	Ser	Pro	Asn	Ala	Val	Asn	Cys	Ile	Leu	Gln
				145				150				155		160	
Val	Lys	Met	Gly	Asn	Asp	Ala	Lys	Phe	Met	Val	Pro	Thr	Thr	Ser	Asn
				165				170						175	
Ile	Val	Trp													

and homologous sequences having at least 75% homology to the SEQ ID
NO: 4,
and antigenic fragments of the sequences.

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5. Antiserum or antibody directed against a structural protein of the virus according to ^{claim 1} ~~any one of claims 1-3.~~

6. Antigen comprising at least a part of a structural protein of the picornavirus according to ^{claim 1} ~~any one of claims 1-3.~~

Sub D2
7. Diagnostic kit comprising at least one member from the group consisting of an antiserum or antibody according to claim 5 or an antigen-binding part thereof, an antigen according to claim 6 or an antibody-binding part thereof, one or several probes designed with respect to the genome of the virus, according to ~~any one of claims 1-3,~~

~~and~~

one or several primers designed with respect to the genome of the virus according to any one of claims 1-3.

8. Vaccine having as an immunizing or neutralizing component a member selected from the group consisting of

a) the virus according to any one of claims 1-3,

b) the virus according to any one of claims 1-3 in attenuated form,

c) the virus according to any one of claims 1-3 in killed form,

d) an antigen according to claim 6, including a subunit of the virus according to any one of claims 1-3,

and

e) DNA corresponding to the genomic RNA of the virus according to any one of claims 1-3.

Sub D3
9. Vaccine according to claim 8 which additionally comprises an adjuvant.

10. Ljungan picornavirus according to ^{claim 1} ~~any one of the claims 1-3,~~ optionally in attenuated or killed form, an antiserum or antibody according to claim 5 or an antigen according to claim 6 for use in a medicament.

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c) A/m/

Sub D4

11. Use of a Ljungan picornavirus according to ~~any one of the claims 1-3,~~
optionally in attenuated or killed form, an antiserum or antibody ~~according to~~
~~claim 5~~ or an antigen according to ~~claim 6,~~ in the preparation of a medicament
for prophylactic or therapeutic treatment of a disease caused by said virus.

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12. Use according to claim 11, wherein the disease caused by said virus is one
of Myocarditis, Cardiomyopathia, Guillain Barré Syndrome, and Diabetes
Mellitus, Multiple Sclerosis, Chronic Fatigue Syndrome, Myasthenia Gravis,
Amyotrophic Lateral Sclerosis, Dermatomyositis, Polymyositis, Spontaneous
Abortion, and Sudden Infant Death Syndrome.

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13. Method of prophylactic or therapeutic treatment of a disease caused by a
virus according to any one of the claims 1-3 in a mammal, including human,
which comprises administering to said mammal a prophylactically or
therapeutically effective amount of a medicament comprising as an active
ingredient a member of the group consisting of

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- a) the virus according to any one of claims 1-3,
- b) the virus according to any one of claims 1-3 in attenuated form,
- c) the virus according to any one of claims 1-3 in killed form,
- d) an antigen according to claim 6, including a subunit of the virus according to
any one of claims 1-3,
- and
- e) DNA corresponding to the genomic RNA of the virus according to any one of
claims 1-3.

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14. Method according to claim 13, wherein the disease caused by said virus is
one of Myocarditis, Cardiomyopathia, Guillain Barré Syndrome, and Diabetes
Mellitus, Multiple Sclerosis, Chronic Fatigue Syndrome, Myasthenia Gravis,
Amyotrophic Lateral Sclerosis, Dermatomyositis, Polymyositis, Spontaneous
Abortion, and Sudden Infant Death Syndrome.

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Add A.

Add 2

add p67

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